10047S

OPERATOR'S MANUAL

C7 FAMILY OF COMBAT WEAPONS

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WARNING

PRECAUTIONS WHEN HANDLING THE C7 FAMILY WEAPONS

* Always make sure the weapon is unloaded IMMEDIATELY after picking it up.

* Never leave a loaded weapon unattended.

* Be sure that the cam pin is installed in the bolt carrier group. If the cam pin is not installed, firing the weapon may cause a breech explosion.

* When using blank firing attachment (BFA) use only blank ammunition.

* If the weapon stops firing with a live round in the chamber of a hot barrel (Misfire): remove the round immediately or wait 15 minutes to avoid injury from a cook off.

* **DO NOT** fire the rifle if there is water in the barrel. Firing the weapon may cause it to explode.

* If you notice a difference in sound or recoil, **STOP FIRING**. Check for a bullet in the bore. Firing the weapon with a bullet lodged in the bore could blow up the barrel.

Follow the Instructions in this book and your weapon will operate smoothly.

AFTER EXPOSURE TO WATER

WARNING

DO NOT FIRE THE WEAPON IF WATER IS PRESENT IN THE BARREL

REMOVE WATER FROM THE BARREL AS FOLLOWS:

* Remove the muzzle cap.

* Pull the cocking handle rearward 5 to 8 cm and allow the water to drain.

* Point the muzzle down and shake weapon vigorously.

* Press the forward assist plunger to seat the round in the chamber.

* Clean the drain hole in the stock with a pipe cleaner and drain.

FACTS ABOUT YOUR WEAPON

The C7 Family Weapons are light weight, aircooled, magazine fed weapons that can fire in semi-automatic, 3 round burst or automatic modes. C7 Family Weapons are 5.56 mm calibre weapons capable of firing all 5.56 mm NATO standard ammunition STANAG No. 4174.

OTHER FEATURES

The barrel assembly has a fully adjustable front sight and a flash suppressor. The bore and chamber are chrome plated. Upper and lower receivers may be opened easily for cleaning and inspection. Both upper and lower receivers are manufactured from aluminum to reduce weapon weight.

The bolt group and barrel extension are designed with locking lugs that lock the bolt group to the barrel extension, before firing.

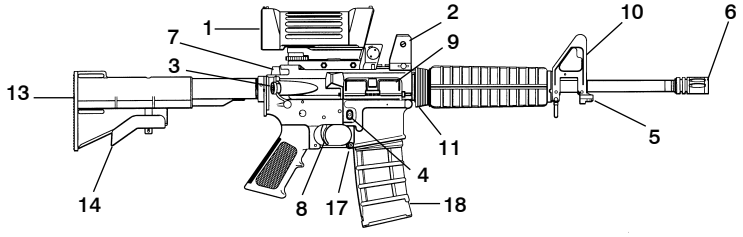
PHYSICAL DATA

C7 FAMILY WEAPONS ARE DIRECT GAS OPERATED, HAVE ROTATING BOLTS AND ARE 5.56 MM CALIBRE. THE BARREL RIFLING HAS 6 GROOVES AND HAS A RATE OF TWIST OF 1 IN 17.8 CM.

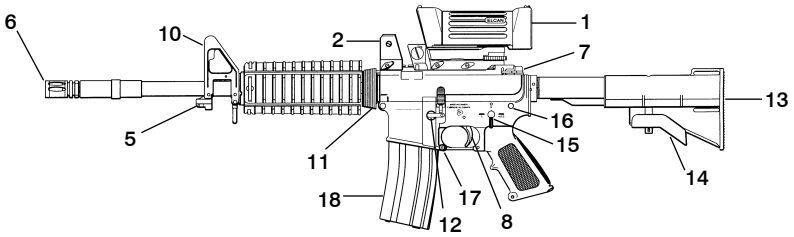
MODEL	C7/C7A1	C8/C8A1	LSW	SFW
CYCLIC RATE (RPM)	700-900	700-950	600-700	700-950
EMPTY WEIGHT	3.4 KG	2.7 KG	5.8 KG	3.4 KG
LOADED WEIGHT	3.9 KG	3.2 KG	6.3 KG	3.8 KG
NORMAL COMBAT AMMO LOAD (RDS)	150	150	270	150
OVERALL LENGTH	1.0 M	0.76-0.84 M*	1.0 M	0.80-0.85-0.88 M**
BARREL LENGTH	0.5 M	0.37 M	0.5 M	0.41 M
POINT BLANK RANGE	300 M	300 M	300 M	300 M
FRONT SIGHT	POST	POST	POST	POST
OPTICAL SIGHT (POWER)	C79 (3.4X)	C79 (3.4X)	C79 (3.4X)	C79 (3.4X)

* 2 POSITION BUTTSTOCK
** 3 POSITION BUTTSTOCK

C8A1



SFW



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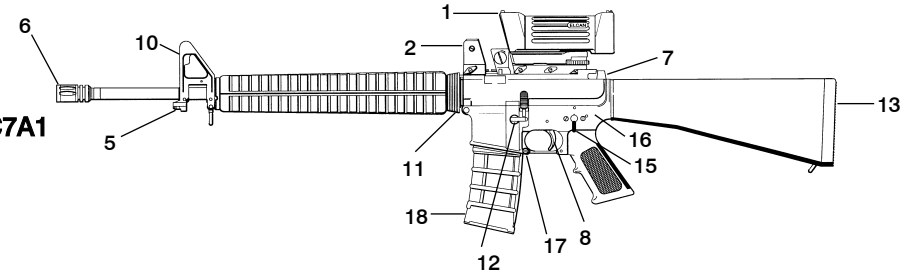
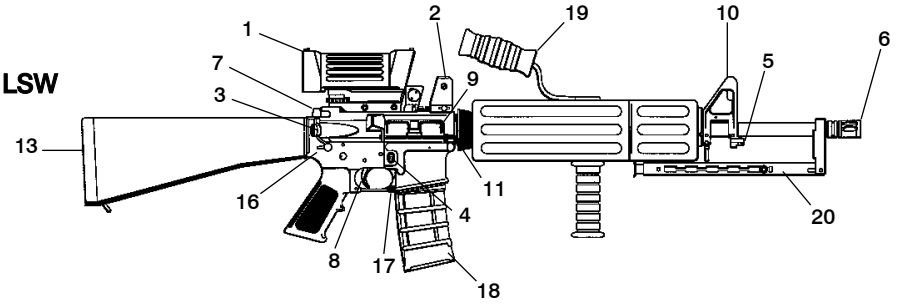


LSW



LOCATION OF CONTROLS

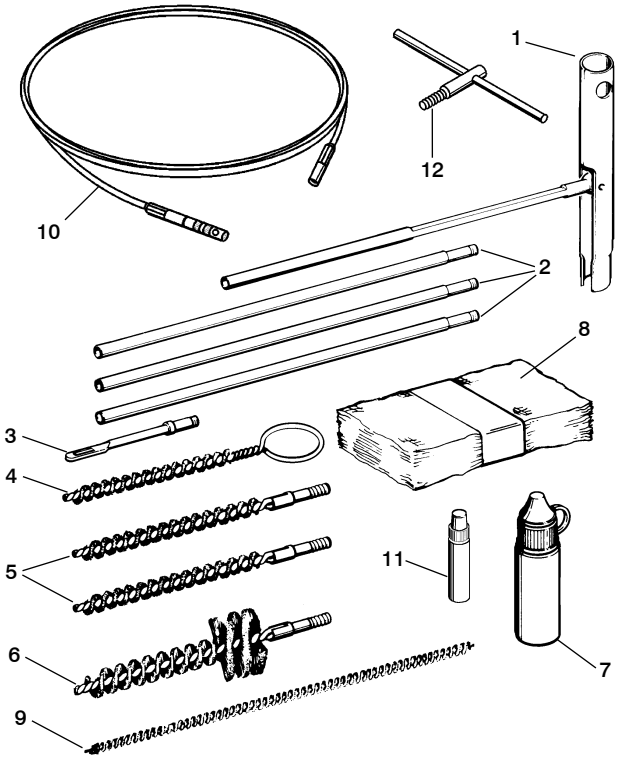
1. C79 OPTICAL SIGHT
2. BACKUP SIGHT
3. FORWARD ASSIST
4. MAGAZINE RELEASE BUTTON
5. BAYONET LUG
6. COMPENSATOR
7. COCKING HANDLE
8. TRIGGER
9. EJECTION PORT COVER
10. FRONT SIGHT
11. HANDGUARD SLIP RING
12. BOLT CATCH
13. BUTT PLATE
14. BUTT RELEASE LEVER
15. FIRE CONTROL SELECTOR
16. TAKEDOWN PIN
17. TRIGGER GUARD PLUNGER
18. MAGAZINE
19. CARRYING HANDLE
20. BIPOD

INDIVIDUAL CLEANING KIT

1. HANDLE
2. SECTION ROD (3)
3. SWAB HOLDER
4. BOLT KEY BRUSH
5. BORE BRUSH (2)
6. CHAMBER BRUSH
7. 0.68 OZ CLP BOTTLE
8. SWAB (25)
9. PIPE CLEANER (3)

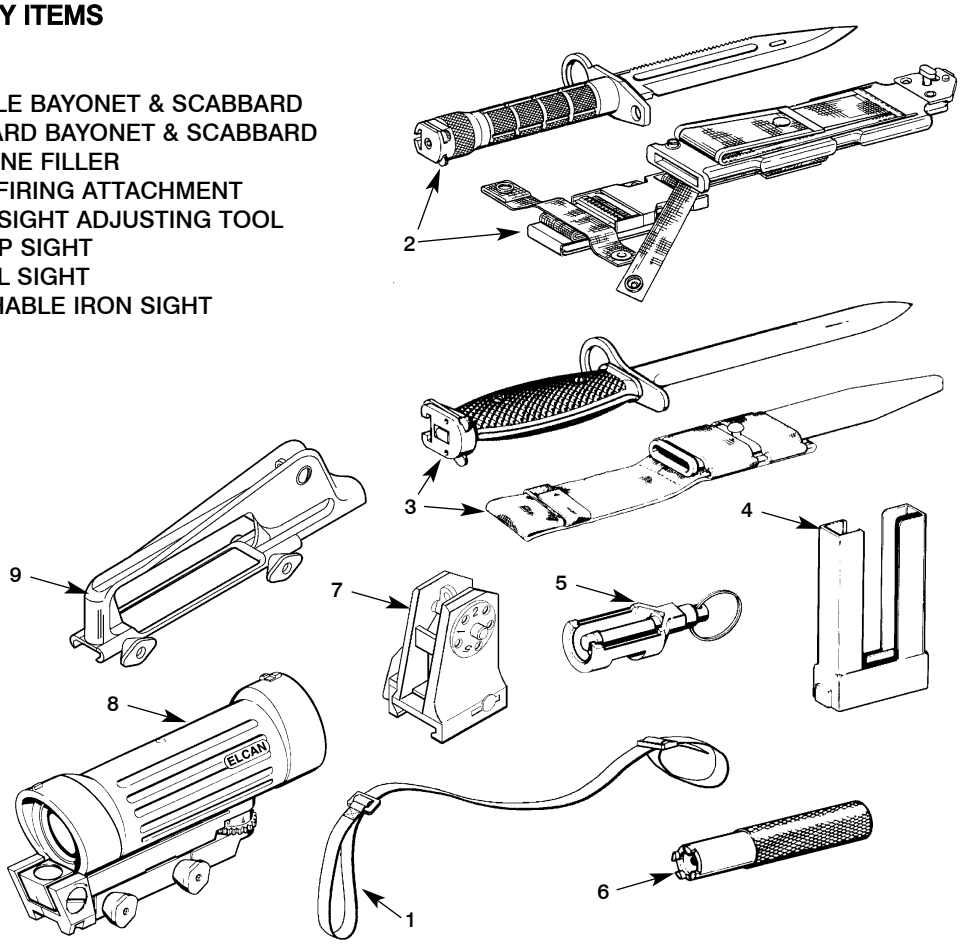
PISTOL GRIP CLEANING KIT

3. SWAB HOLDER
5. BORE BRUSH
8. SWAB (10)
10. CABLE WITH ADAPTER
11. 0.125 OZ CLP BOTTLE
12. HANDLE



ANCILLARY ITEMS

1. SLING
2. M9 STYLE BAYONET & SCABBARD
3. STANDARD BAYONET & SCABBARD
4. MAGAZINE FILLER
5. BLANK FIRING ATTACHMENT
6. FRONT SIGHT ADJUSTING TOOL
7. BACK-UP SIGHT
8. OPTICAL SIGHT
9. DETACHABLE IRON SIGHT



CARE AND CLEANING

NORMAL CONDITIONS

* Clean and lubricate with Cleaner Lubricant Preservative (CLP) or an equivalent cleaner lubricant.

DUSTY AND SANDY AREAS

* Clean the weapon more frequently, at least once a day.
* Reduce lubrication, to a minimum, especially on sliding surfaces.
* Keep the weapon covered when ever possible.

TROPICAL CONDITIONS

* Inspect, strip, clean and lubricate the weapon more frequently; at least once a day.
* After handling, wipe the weapon down with an oily cloth to remove perspiration, which will accelerate corrosion.

HOT DRY CLIMATE

* Clean and lubricate the weapon more frequently.

ARCTIC CONDITIONS

* Clean the weapon and lubricate it sparingly.
* Cycle the weapon frequently to prevent the mechanism from freezing up.
* Protect weapon with a cover when it is kept outside, and during periods of non-use.
* If weapon is moved indoors, clean and lubricate thoroughly to remove condensation.

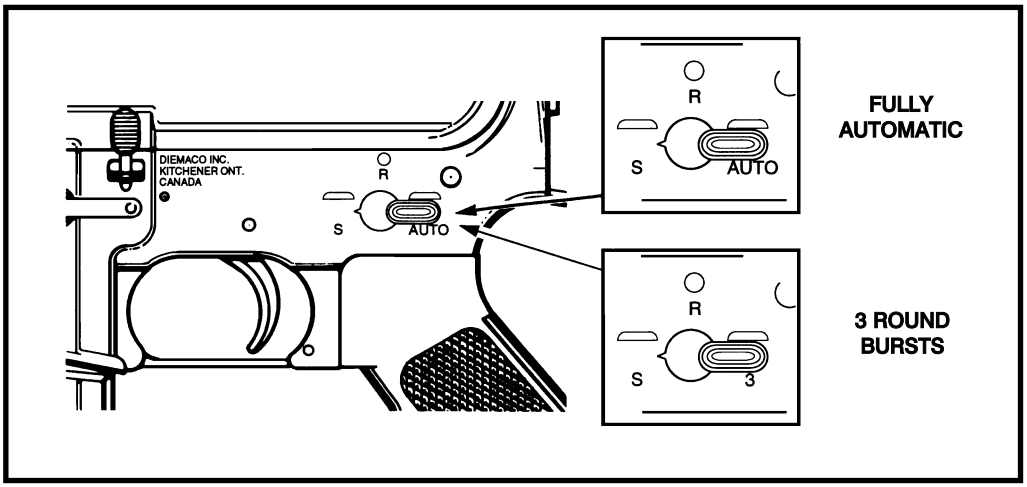
FIRE CONTROL SELECTOR

"S" - The weapon will not fire. The fire control selector cannot be moved to "S" unless the weapon is cocked. Always place on "S" when loading or unloading.

"R" - The weapon will fire one round each time the trigger is squeezed.

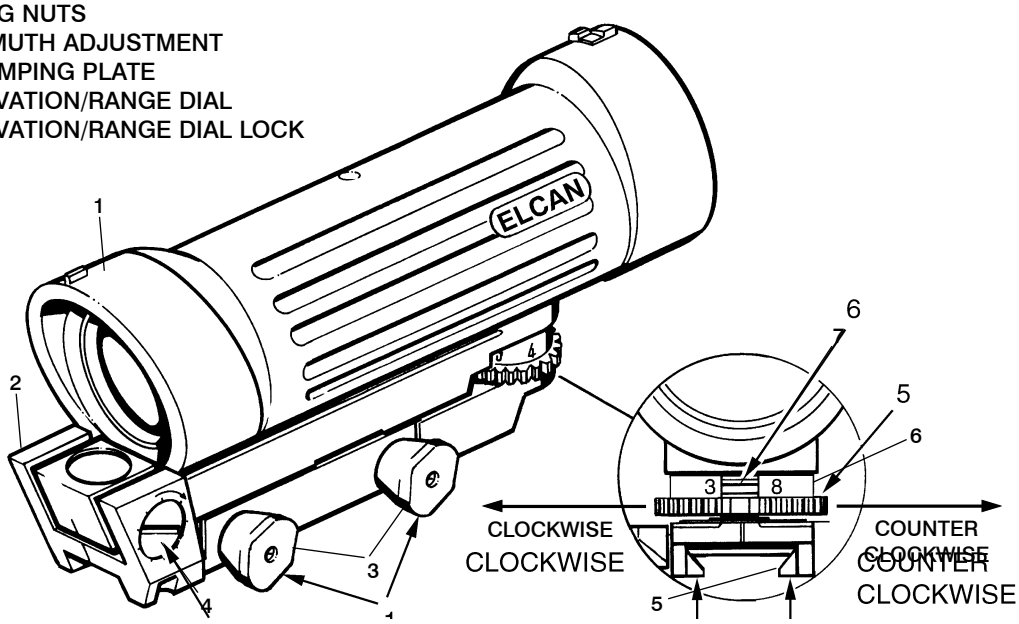
"3" - The weapon will fire a burst of 3 rounds each time the trigger is pulled.

"AUTO" - The weapon will continue to fire until the magazine is empty or the trigger is released.



C79 OPTICAL SIGHT
LOCATION OF CONTROLS

1. OPTICAL SIGHT
2. MOUNT ASSEMBLY
3. WING NUTS
4. AZIMUTH ADJUSTMENT
5. CLAMPING PLATE
6. ELEVATION/RANGE DIAL
7. ELEVATION/RANGE DIAL LOCK



SIGHT ADJUSTMENTS AND ZEROING

C79 OPTICAL SIGHT

The C79 optical sight has both azimuth and elevation adjustments. Range adjustments are from 200 to 800 metres in 100 m increments.

NOTE

Zeroing is normally carried out at 100 m.

* Set the range dial to 200 m.
* Fire a five round group, maintaining the same Point of Aim (POA).
* Identify the Mean Point of Impact (MPI) and adjust the azimuth and elevation to bring the POA on to the MPI.
* To adjust azimuth, insert a coin into the azimuth shaft slot and rotate clockwise or counter clockwise. Rotating the azimuth shaft clockwise moves the MPI right (1 click moves the MPI 2.5 cm or 0.25 mil at 100 m).
* To adjust elevation, disengage the elevation dial lock by inserting a coin into the lock groove and moving the lock up. Rotate the range dial clockwise or counterclockwise. Rotating the range dial clockwise with the lock disengaged will move the MPI down (1 clock moves the MPI 2.5 cm or 0.25 mil 100 m).
* When the MPI and POA coincide, rotate the range dial counterclockwise two clicks on a C7 or LSW (three clicks on a C8 or SFW) and engage the lock. This will ensure that the sight is zeroed at all ranges.

REAR SIGHT, DETACHABLE IRON SIGHT, OR BACK-UP SIGHT

Non-optically sighted C7 Family weapons and weapons fitted with the DIS or the back-up sight utilize a common two aperture flip sight. The large aperture (battle sight) is used for short range or low light conditions. The small aperture can be used at all ranges. To adjust windage: depress the windage drum detent with the point of a bullet and rotate the windage drum clockwise or counterclockwise. To move the MPI right, rotate the drum clockwise as indicated by the arrow.

* One notch of rotation moves the MPI 2.8 cm or 0.28 mil at 100 m for the Rifle and LSW.
* One notch of rotation moves the MPI 3.8 cm or 0.38 mil at 100 m for the Carbine and SFW.

SIGHT ADJUSTMENTS AND ZEROING (Cont')

FRONT SIGHT

To adjust elevation: depress the front sight detent with the point of a bullet and rotate the front sight post clockwise or counterclockwise. To move the MPI up, rotate the front sight post clockwise as indicated by the arrow.

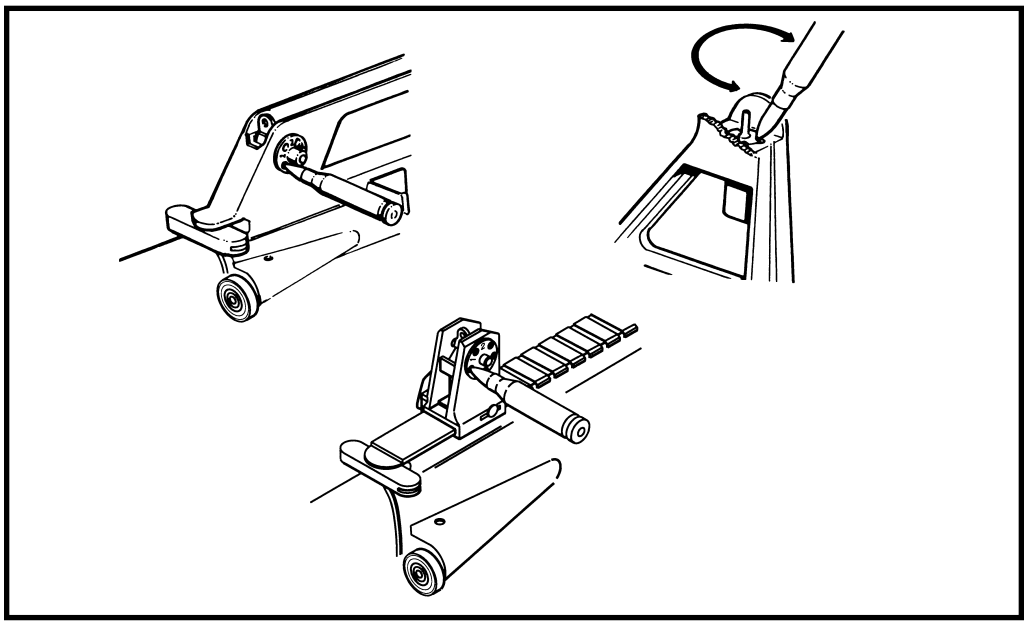
* One notch of rotation moves the MPI 3.5 cm or 0.35 mil at 100 m for the Rifle and LSW.
* One notch of rotation moves the MPI 4.7 cm or 0.47 mil at 100 m for the Carbine and SFW.

ZEROING

The iron sights for the rifle are normally zeroed at 300 m. The carbine iron sights are zeroed at 250 m. If zeroing is fired at 100 m the group MPI will be 12.5 cm above the point of aim for the rifle, and 8.9 cm above for the carbine.

NOTE

Adjustments to the front and rear sights may be made using a bullet or the Frontsight Adjusting Tool contained in the Section Cleaning Kit.



PROVING THE WEAPON "SAFE"

* Remove the magazine.
* Pull the cocking handle fully rearward; then hold it to the rear.
* Check to ensure that the receiver and chamber are clear.
* Allow the bolt carrier group to go forward under control.
* Squeeze the trigger to "Fire" the action.
* Close the ejection port.

FILLING THE MAGAZINE

* The magazine can be filled by using the magazine filler and 10 round clips, or by inserting single rounds.

LOADING

* Place the fire control selector on "S".
* Push the magazine into the magazine well until the magazine catch engages with a positive click, to hold the magazine.
* Pull the cocking handle to the rear.
* Release the cocking handle: DO NOT "Ride" the cocking handle, let it go forward on it's own.
* Tap the forward assist plunger to ensure that the bolt is fully forward and locked.
* Close the ejection port.

UNLOADING

* Place the fire control selector on “S”.
* Press the magazine catch and remove the magazine.
* Pull the cocking lever to the rear twice; then hold it to the rear.
* Check to ensure that the receiver and chamber are clear.
* Allow the bolt carrier to go forward under control.
* Place the fire control selector on “R”; squeeze the trigger and close the ejection port cover.

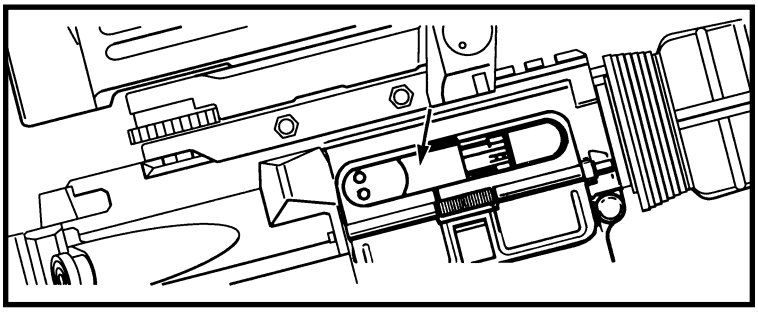
IMMEDIATE ACTION

* If the weapon fails to fire, or stops firing, the Immediate Action is: Tilt the weapon to the left and check the position of the bolt.

CORRECTIVE ACTION

If the bolt is to the rear:

* Check to see if the magazine is empty. Change the magazine.
* Operate the bolt catch and tap the forward assist plunger.
* Re-aim and continue firing.



If the bolt is fully forward:

* Check the magazine to ensure that it is fully seated and locked in place.
* Pull the cocking handle all the way back and watch for the ejection of a round, or an empty casing.
* If a round or empty casing is ejected, release the cocking handle to feed a new round and tap the forward assist plunger.
* Re-aim and continue firing.
* If no empty casing or round is ejected, release the cocking handle and attempt to continue firing. If the weapon fails to fire, take further corrective action.

If the bolt carrier is partially forward:

* Pull the cocking handle all the way to the rear and push in the bolt catch to hold the bolt to the rear.
* Examine the receiver and chamber of the weapon.
* If a live round or empty casing is in the receiver or chamber, remove the magazine.
* Clear the obstruction.
* Replace the magazine.
* Push in on the bolt catch and tap the forward assist.
* Re-aim and continue firing.
* If the receiver and chamber are clear: operate the bolt catch, tap the forward assist, and continue firing.

MISFIRE - May be due to faulty ammunition or firing mechanism.

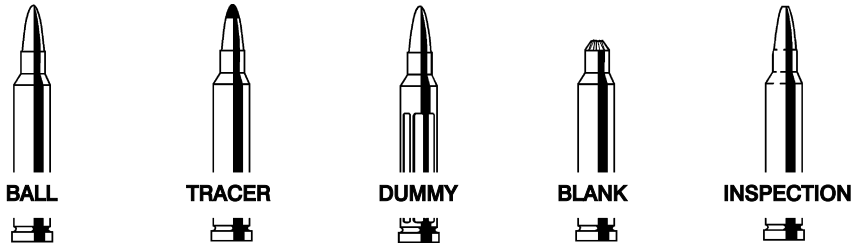
COOKOFF - A cartridge in a chamber of a very hot weapon.

WARNING

A CARTRIDGE COOKOFF CAN OCCUR 10 SECONDS AFTER CONTACT WITH THE CHAMBER OF A HOT BARREL. REMOVE THE CARTRIDGE WITHIN 10 SECONDS. IF THE CARTRIDGE CAN NOT BE REMOVED, REMOVE THE MAGAZINE. KEEP THE RIFLE POINTED IN A SAFE DIRECTION AND WAIT 15 MINUTES BEFORE ATTEMPTING TO REMOVE THE CARTRIDGE FROM THE CHAMBER.

* The C7 family of weapons can fire the entire combat load of 150 rounds at any rate of fire without danger of cookoff.

AMMUNITION - 5.56 X 45 MM NATO



DO NOT FIRE

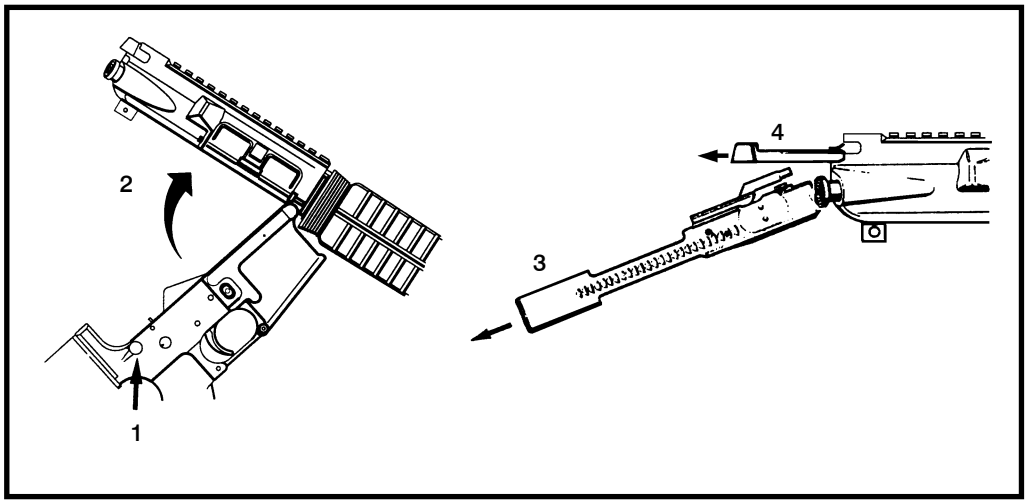
* Seriously corroded ammunition.
* Dented cartridges.
* Cartridges with loose bullets.
* Cartridges exposed to extreme heat (57°C) until they have cooled.

FIELD STRIPPING

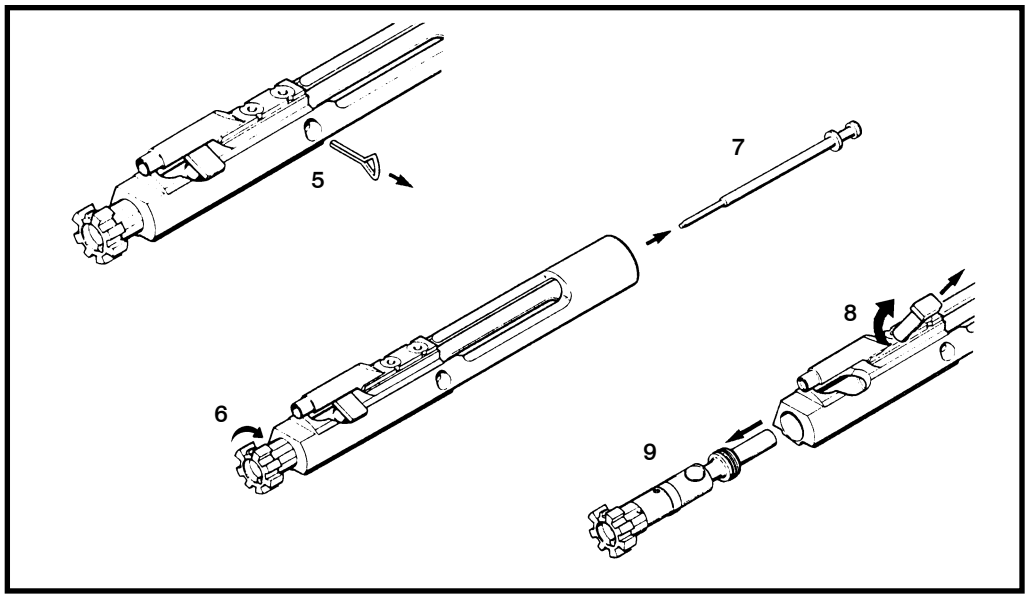
PROVE THE WEAPON SAFE BUT DO NOT OPERATE THE TRIGGER.

PLACE THE FIRE CONTROL SELECTOR ON “S”.

* Push the takedown pin (1) all the way to the right. Pivot the upper receiver group (2) upward.
* Remove the bolt carrier and bolt (3).
* Remove the cocking handle (4).

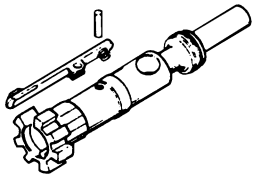


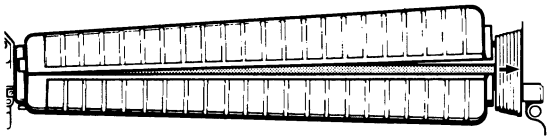
* Remove the firing pin retaining pin (5).
* Rotate the bolt (6) into the locked position.
* Remove the firing pin (7).
* Rotate the cam pin (8) 1/4 turn and remove it.
* Remove the bolt (9) from the carrier.



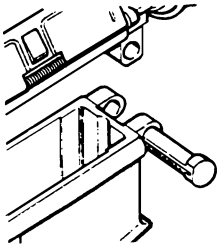
ADDITIONAL STRIPPING

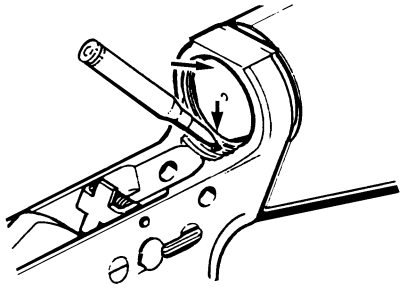
* Remove the extractor pin (using a firing pin).
* Remove the extractor and spring (**DO NOT** separate the spring from the extractor) and ensure that the rubber insert is in place in the extractor spring.





* Remove the handguards or Rail Interface System (RIS).
* Push the receiver pivot pin all the way to the right.
* Separate the upper and lower receivers.
* Press in on buffer; depress the buffer retainer and release the buffer.
* Remove the buffer and spring.





ASSEMBLY

* Insert the return spring and buffer.
* Assemble the upper and lower receiver, and engage the pivot pin.
* Ensure that the fire control selector is on “S”.
* Assemble the handguards or RIS.
* Assemble the extractor and spring to the bolt.
* Push in the extractor pin.
* Slide the bolt into the carrier.
* Insert the cam pin and rotate 1/4 turn.
* Insert the firing pin.
* Rotate the bolt into the unlocked position.
* Insert the firing pin retaining pin.
* Insert the cocking handle.
* Insert the bolt carrier.
* Close the upper and lower receiver groups.
* Push the takedown pin into the weapon from the left.

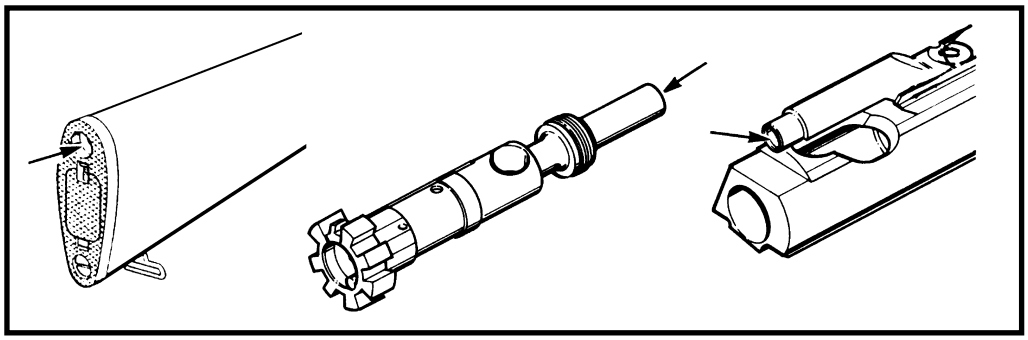
CLEANING AFTER FIRING

* Clean all affected parts with Cleaner Lubricant Preservative (CLP) or an equivalent cleaner lubricant.

NOTE

Shake the container to mix the CLP thoroughly before using.

* Lubricate all metal parts with CLP.
* Pull a cleaning rod through the bore. Pull the rod in one direction only: **DO NOT** reverse direction. Reversing direction of the cleaning rod in the bore will damage the bore brush and could damage the cleaning rod.
* Clean the areas indicated by arrows, in the following illustration, with pipe cleaners.

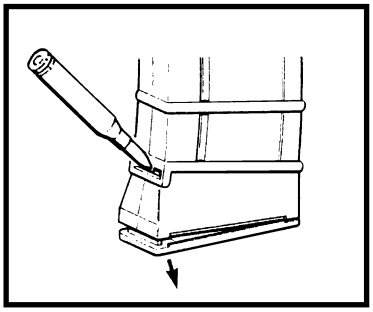


MAGAZINE ASSEMBLIES

C7 Family weapons may be equipped with either plastic or metal magazines.

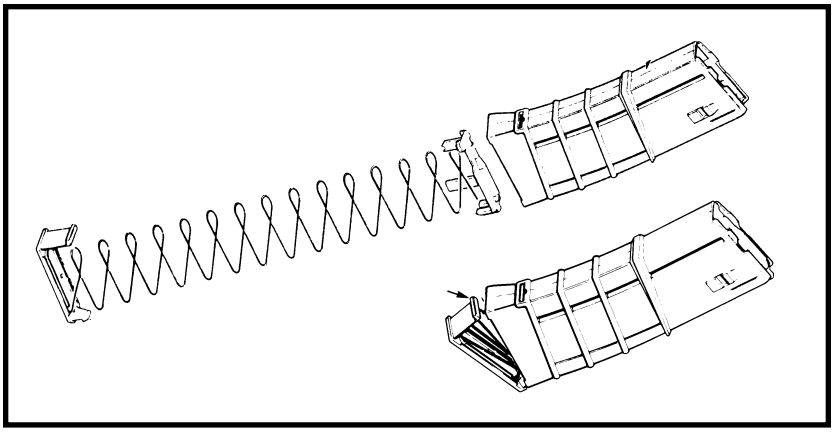
To disassemble the plastic magazine:

* Take control of the magazine baseplate to control magazine spring pressure.
* Push in on the baseplate indent with the tip of a round or suitable object.
* Remove the baseplate, spring and follower.



To reassemble the plastic magazine:

* Assemble the magazine spring to follower, with spring hooked to the follower.



* Insert assembled spring and follower into magazine body.
* Position baseplate on spring and compress spring into magazine body.
* Hook baseplate into the slot at the back of the magazine body.
* Snap front of baseplate into position.

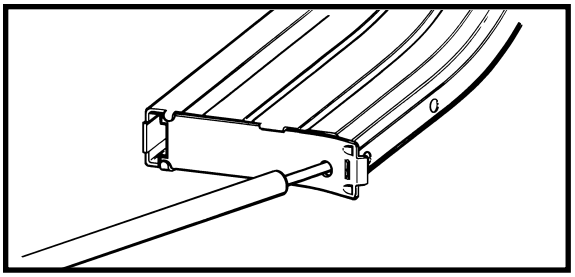
To disassemble the metal magazine:

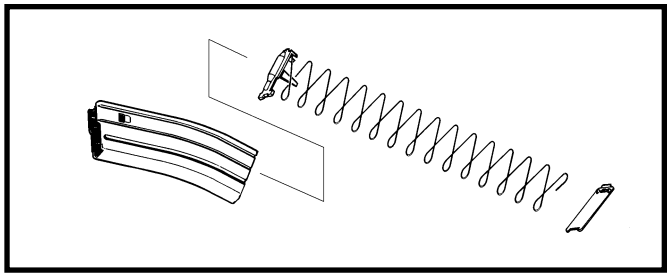
* Insert a suitable punch through the hole in the magazine baseplate.

* Lift the baseplate lug clear of the magazine body.
* Take control of the baseplate to control magazine spring pressure.
* Slide the baseplate rearward out of the lugs on the magazine body.
* Remove the baseplate, spring and follower.

To reassemble the metal magazine:

* Assemble the magazine spring to the follower.
* Insert the follower into the magazine body.





* Use the baseplate to push the magazine spring into the magazine body.
* Slide the baseplate into the lugs on the magazine body.
* Ensure that the baseplate lug is fully engaged.

FUNCTION TEST

Test the function of the weapon after assembly, with the magazine removed, as follows:

* Cock the weapon; move the fire control selector to “S”; and squeeze the trigger: The hammer should not be released.
* Move the fire control selector to “R” and squeeze the trigger and hold it to the rear: the hammer should be released.
* With the trigger still at the rear, cock the weapon: the hammer should not be released. Release the trigger and listen for a “Click” as the disconnect releases the sear. Squeeze the trigger again: the hammer should be released.

*** 3 ROUND BURST MECHANISM** - Cock the weapon; place the fire control selector on “3”; squeeze the trigger and hold it to the rear; the hammer should be released. Cock the weapon; the hammer should be released. The hammer should be released automatically for a total of 3 times, on the fourth cycle the hammer should not be released. Release the trigger and listen for a “Click” as the disconnect releases the sear. Squeeze the trigger again: the hammer should be released.

*** AUTO MECHANISM** - Cock the weapon; place the fire control selector on “AUTO”; squeeze the trigger and hold it to the rear; the hammer should be released. Cock the weapon; the hammer should be released. The hammer should be released each time the weapon is cocked as long as the trigger is held to the rear.

SLIDING BUTTSTOCK

To collapse or extend the buttstock, squeeze the release lever and slide the butt forward or rearward. The buttstock may have intermediate positions for use by operators wearing body armor or winter clothing.

ARCTIC TRIGGER

To ensure an operator wearing gloves can access the trigger, depress the trigger guard plunger and rotate the trigger guard down against the pistol grip.

BLANK FIRING ATTACHMENT (BFA)

Attach the BFA as follows:

* Unscrew the stem and pull it all the way out.
* Hook the body behind the first groove in of the flash suppressor.
* Slide the stem into the suppressor and HAND TIGHTEN.

CAUTION

DO NOT use tools to attach the BFA to the weapon.

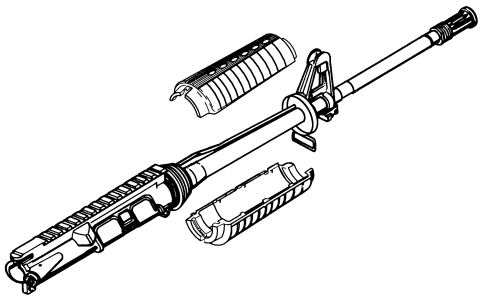
WARNING

FIRE BLANK AMMUNITION ONLY, WHEN BFA IS ATTACHED.

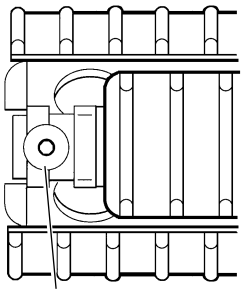
* Firing a bulleted round will cause serious damage to the weapon and may injure personnel.

RAIL ADAPTER SYSTEM

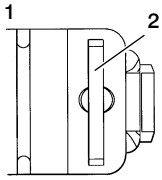
The Rail Adapter System (RAS) is installed in place of the standard handguards. All hand protectors on the RAS are removable with the RAS installed on the weapon.

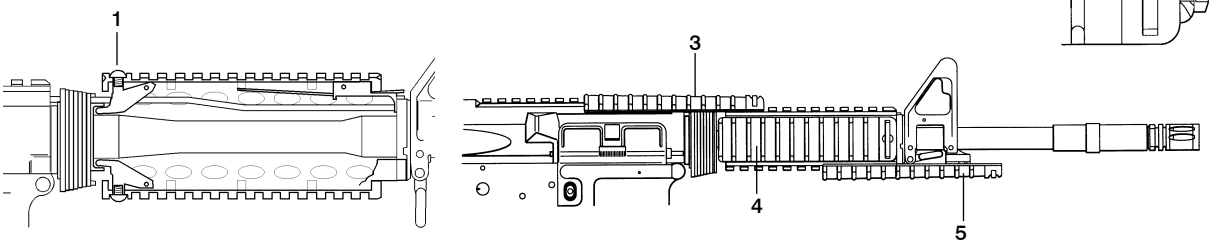


Remove the top hand protector and loosen the rear clamp screw (1). Install the upper portion RAS with the front locking spring tab under the handguard cap. Position the rear clamp over the gas tube and into the barrel nut. Tighten the clamp screw to secure the rear of the RAS. Slide the top hand protector onto the RAS from the rear. The lower portion of the RAS is assembled in the same manner.



To remove the hand protectors from the RAS, depress the spring lock (2) and slide the top and bottom hand protectors off of the rail. The top hand protector (3) is removed to the rear; the side (4) and bottom (5) hand protectors are removed forward, past the front sight.



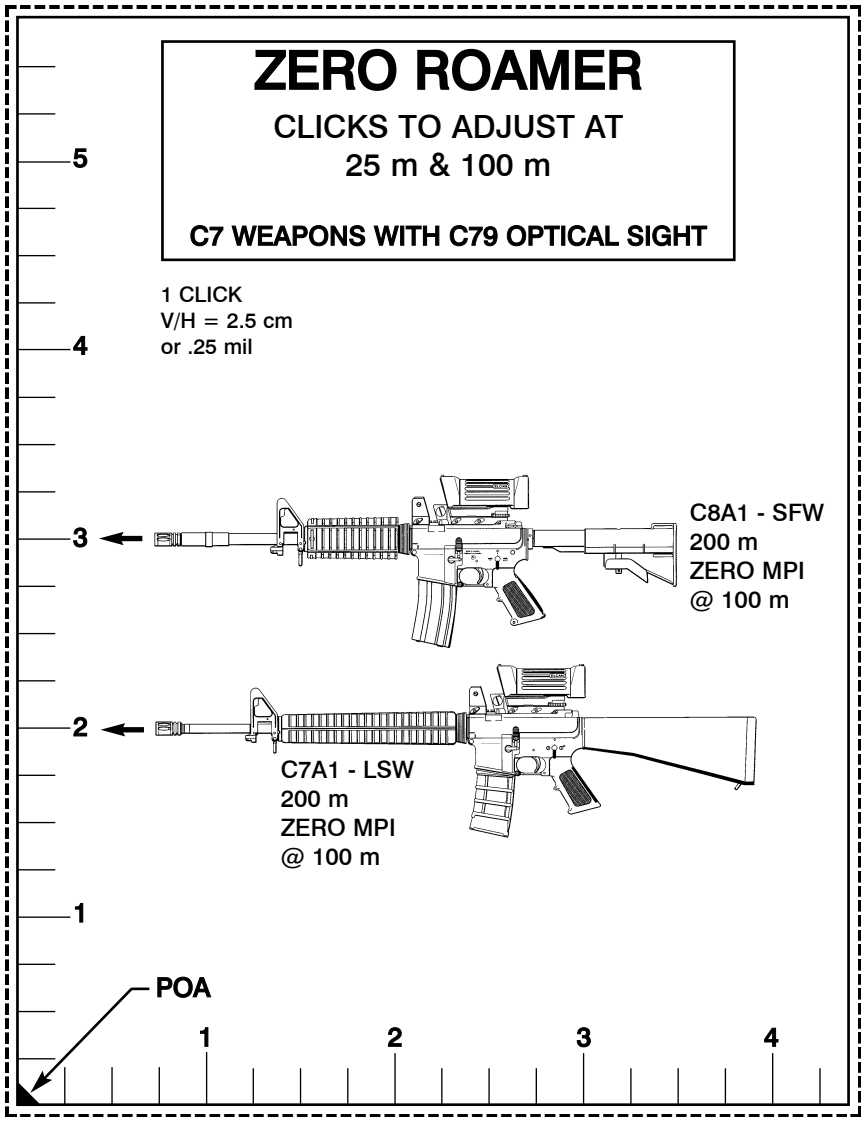


TROUBLE SHOOTING

PROBLEM	COMMON CAUSE	CORRECTIVE ACTION
Weapon fails to fire	- Fire control lever on “S”	- Move lever to “R” or “AUTO”
	- Improper assembly of firing pin	- Assemble correctly (retaining pin goes to the rear of the large shoulder of the firing pin)
	- Excessive amount of oil in firing pin hole	- Clean with pipe cleaner
	- Defective ammunition	- Remove and discard
	- Too much carbon on firing pin or in firing pin hole	- Clean
Bolt won’t unlock	- Dirty bolt	- Clean
	- Burred bolt	- Refer to Weapons Technician
Failure to extract	- Broken Extractor Spring	- Refer to Weapons Technician
	- Dirty or corroded ammunition	- Remove
	- Carbon in chamber	- Clean the chamber
	- Fouling or carbon in the extractor recess or lip	- Clean
Failure to feed	- Dirty or corroded ammunition	- Clean
	- Dirty magazine	- Clean
	- Defective magazine	- Replace
	- Too many rounds in the magazine	- Remove the excess ammunition
	- Movement of buffer is restricted	- Disassemble and clean the buffer and return spring
Double feed	- Defective magazine	- Replace
Round will not chamber	- Dirty or corroded ammunition	- Clean or replace
	- Damaged ammunition	- Replace
	- Carbon in chamber	- Clean
	- Damaged gas tube	- Refer to Weapons Technician
Bolt will not lock	- Dirt, corrosion or carbon buildup in the barrel locking lugs	- Clean
	- Faulty magazine	- Replace
Failure to eject	- Broken ejector spring	- Refer to Weapons Technician
	- Movement of the buffer is restricted	- Remove and clean (before assembling the bolt to the carrier, ensure that the gas tube fits into the carrier key and that the carrier moves freely within the upper receiver)
	- Gaps in the bolt rings not staggered	- Stagger the ring gaps
	- Carbon or dirt in the interior of the gas key or on the exterior of the gas tube	- Clean
Bolt fails to lock after the lastround has fired	- Dirty or corroded bolt latch	- Clean
	- Faulty magazine	- Replace
	- Dirt in the barrel extension	- Clean
Fire control selector binds	- The selector is dry	- Lubricate
	- Dirt or sand under the trigger	- Clean

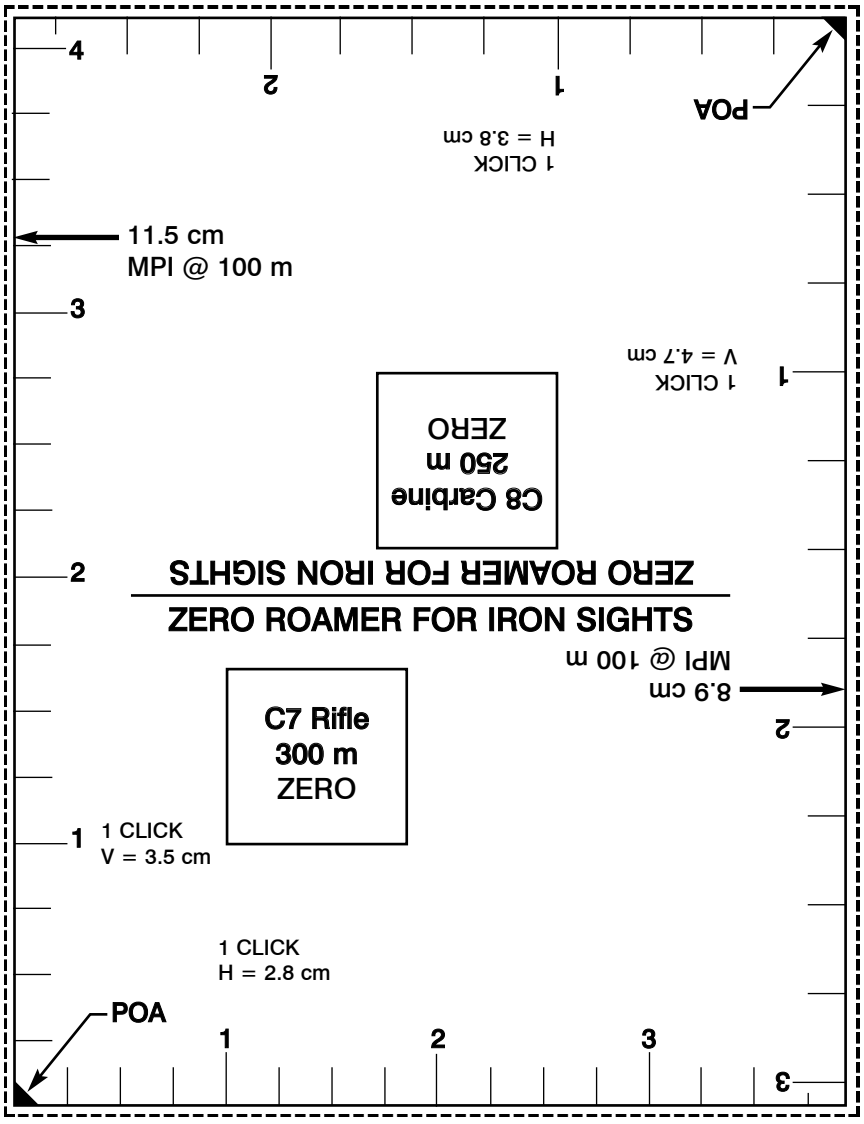
NOTES

SIGHT ROAMER



*** Copy this and cut out along dotted lines to use Sight Roamer ***

SIGHT ROAMER



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